



Institutional Status Review 580/Information Systems Center

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Mission Applications Branch

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AGENDA



- TECHNOLOGY HIGHLIGHTS
- PARTNERING AND OUTREACH
- INSTITUTIONAL STATUS
 - Papers, Conferences, and Seminars
 - Personnel
 - Procurement
 - Safety
- GOOD NEWS



ISC Technology Highlights



Technology Activity/Project	Customer	Lead Code(s)	Major Accomplishments/Highlights/Comments	Status			
				Tech Issues	Schedule Issues	Cost Issues	Staffing Issues
CETDP	NASA HQ	580	<ol style="list-style-type: none"> Peter Hughes and Marti Szczur served as technical reviewers of CETDP Thinking Systems technology proposals. Peter Hughes served as the Panel Lead for the Autonomy & Knowledge-based Software Engineering group. 				
IP In Space	Future Missions	582	As member of the STRV-1d Steering Committee, Charlie Wildermann completed the On-orbit Test Plan defining test cases for exercising commercial Internet in Space protocol and, optionally, CCSDS SCPS protocol.				
New Flight Qualification	562	582	Established a VxWorks OS support environment for upcoming pentium III radiation testing. (Alan Cudmore is supporting Ken Label/562)				

Activity	Issue Code	Issue	Action



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On-Board Architecture	Explorer Missions and SOFIA	582	Continuing collaboration with Saab Ericsson Space on using Open Source software for portable flight software environments. Hosting Mid-Term review at GSFC for, "A Processor Transparent On-Board Computer Architecture Using a Radiation Hard Microprocessor" Project under the Explorer Missions and SOFIA program.				
ISS Payloads	International Space Station (ISS)	584	Pat Hennessy conducting concept phase technology studies for EXPRESS Pallet Adapter Model, a new flight avionics design intended to provide Hitchhiker-like service to small payloads flying on the ISS. Three studies were completed: 1. Use of CCSDS protocols for instrument interfaces. 2. On-board data recorder sizing. 3. Use of ITOS for electrical and integration testing of the avionics.				

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Sensor Web Test Beds	Earth Science Vision (ESV)	584	Jay Pittman worked with 970 Reps to define proof of concept to allow UAVs to act as 'sensor web' test platforms using flight modems for inter-platform communication link.				
High Performance Communications	GSFC	585	Jeff Smith arranged for GSFC to become a member of the University Corporation for Advance Internet Development (UCAID), the Abilene Network and the Mid-Atlantic Exchange (MAX). Some networks on GSFC are connected to the Abilene Network at OC12 (622Mbps). The Abilene Network provides connectivity to over 100 US Universities and a dozen International High Performance Networks.				
IMAGE 2000	Code 902/CIPE	588	<ol style="list-style-type: none"> 1. Delivered latest build to customer. 2. Participated in a joint CIO proposal effort with Code 900, Code 600, ARC, and JPL for supplying digital library for science education. 				

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Operating Missions as Nodes on the Internet (OMNI)	Future Missions	588	<ol style="list-style-type: none"> 1. Provided demonstrations for NOAA, AFRL, and SOMO 2. Participated in the STRV-1d SCPS experiment steering group 3. Project was discussed in press releases in both Federal Computer Week and NASA News. 	X			
Instrument Remote Control (IRC)	SOFIA/HAWC	588	<ol style="list-style-type: none"> 1. Hosted HAWC Software Requirements meeting with University of Chicago Yerkes Observatory. 2. Hosted HAWC Algorithms Requirements meeting with University of Chicago and Rochester Institute of Technology. 				
Scientist's Mission Assistant & Research Tool (SMART)	Science Community	588	Selected RXTE mission & science operations as our initial demonstration domain				

Activity	Issue Code	Issue	Action
OMNI	T	OIG Inspection of OMNI	Full disclosure and participation of ISC and Code 586



ISC Partnering & Outreach



- The 2nd GSFC/JPL Quality Mission Software Workshop was held near JPL on May 16-18, 2000-it was an excellent exchange of ideas, potential collaboration and candid discussion associated with software development for science missions
- The Software Engineering Laboratory (SEL)/Code 581 has issued its announcement and call for papers for the 25th Annual Software Engineering Workshop (SEW): “The Future of Software at NASA” (The SEW will be held on November 28-30, 2000 with abstracts due by September 1, 2000)



ISC Partnering & Outreach



- Code 583 partnered with Ames Research Center to submit a SOMO POP 2000 Budget Formulation Overguides Proposal for the integration of the ARC Remote Agent Planner software into the Mission Operations Planning and Scheduling System
- Code 584 personnel presented talks on NASA at the following schools:
 - Fruitland Elementary School/Dennis Melvin and Dwayne Morgan
 - Jeffers Hill Elementary School/Cindi Adams
- Cindi Adams/Code 584 conducted a tour of SOHO Control Center, in building 3, for actress Jeri Ryan who plays Seven of Nine on “Star Trek Voyager”



ISC Partnering & Outreach



- Debbie Parks/Code 584 participated in a career fair at Arcadia High School on March 2, 2000 and at Broadwater Academy on April 27, 2000
- Lori Perkins/Code 584 completed several animations about Greenland Ice Density for the project scientist review and possibly Science magazine-she also completed web data sets on the Mozambique floods, Mars Orbiter Laser Altimeter (MOLA), Significant Arctic Ozone Loss, and TRMM/GOES/SST Data used to Improve Hurricane Predictions



ISC Partnering & Outreach



- Jay Pittman/Code 584W is working with professors from ODU and Norfolk State (HBUC) to develop a program by which grad students could attend "suborbital university" and do hands on development in support of AETD branches
- Jacqueline Mims/Code 586 was featured in *The Prince George's Journal* for her participation as a keynote speaker at the United Cerebral Palsy's, "Annual High School for High Tech" opening ceremony
- Walt Truszkowski, Jim Rash, and Chris Rouff/Code 588 organized and conducted the Goddard Workshop on Formal Approaches to Agent-based Systems



ISC Institutional Status



➤ Papers, Conferences, and Seminars

- Mark Lupisella/Code 584 was invited to Colorado State Center for Engineering Infrastructure and Space to give seminar on Astrobiology-also invited by Penn State to speak regarding establishing a Space Colonization Institute
- Bob Schweiss/Code 586 presented *Landsat Science Data Systems: a systems overview* at SPIE's 14th Annual Symposium, in Orlando, Algorithms for Multispectral, Hyperspectral, and Ultraspectral Imagery VI



ISC Institutional Status



➤ Papers, Conferences, and Seminars

- Bob Lutz/Code 586 submitted "A Review of EOS Terra Quality Assessment" for IGARRS 2000 Meeting
- Ben Kobler/Code 586 hosted the 8th NASA Goddard Conference on Mass Storage Systems and Technologies at the UMD in cooperation with the 17th IEEE Symposium on Mass Storage Systems
 - Participated in the IEEE Executive Committee meeting to review plans for the next conference on Mass Storage Systems and Technologies
- Peter Hughes/Code 580 gave an invited presentation on “Information Systems Technologies for GSFC’s 21 Century Missions” at the JHU/APL Research and Technology Development Center’s monthly colloquium on May 15, 2000



ISC Institutional Status



➤ Personnel

- Bob Lutz joined Code 586 as an outside hire
- Two phased retirements completed
- Three transfers to other GSFC Directorates
- One transfer to JSC
- One resignation
- One retirement



ISC Institutional Status



➤ Procurement

- Completed Flight Software Branch Lessons Learned in regards to procurement of flight software from a prime mission contractor

➤ Safety

- No injuries to personnel while on the job



ISC Good News



- The Office of Earth Science recently awarded the following ISC technology proposals for funding in response to the Advanced Information Systems Technology (AIST) Program NRA (NRA-99-OES-08) for approximately \$1.8M:
 - Investigation of Embedded Real-time Linux for Onboard Spacecraft Use - MaryAnn Esfandiari/586 & Pat Stakem/QSS
 - Onboard Resource Management- Barb Pfarr/584 & Lonnie Welch/Ohio U.
 - On-board Cloud Contamination Detection with Atmospheric Correction - Jerry Miller/Code 582
 - These 3 were among 7 ISC proposals submitted. There were a total of 30 awards granted out of a field of 117 proposals.



ISC Good News



- Rodney Davis/Code 584W received the Goddard Quality and Process Improvement Award for the development of a Knowledgebase in support of the ULDB Flight Software development
- Ben Keith/Code 585 accepted a Group award in the Quality and Process Improvement category on May 1, 2000 for the Telecommunication Service Request System
- The HST Operations Team, which included 580 personnel, was awarded the Laureate Award from Aviation Week for HST Servicing Mission 3



AETD	- Applied Engineering and Technology Directorate
AFRL	- Air Force Research Laboratory
AIST	- Advanced Information Systems Technology
APL	- Applied Physics Laboratory
ARC	- Ames Research Center
CCSDS	- Consultative Committee for Space Data Systems
CETDP	- Cross-Enterprise Technology Development Program
CIO	- Chief Information Officer
CIPE	- Center for Image Processing in Education
EOGEO	- Earth Observation and Geophysical
EOS	- Earth Observation System
ESV	- Earth Science Vision
GOES	- Geostationary Operational Environmental Satellite
GSFC	- Goddard Space Flight Center
HAWC	- High-resolution Airborne Wideband Camera
HBUC	- Historically Black Universities and Colleges
HQ	- Headquarters
HST	- Hubble Space Telescope
IEEE	- The Institute of Electrical and Electronics Engineers, Inc.
IGARRS	- International Geoscience and Remote Sensing Symposium
IP	- Internet Protocol
IRC	- Instrument Remote Control
ISC	- Information Systems Center
ISS	- International Space Station
ITOS	- Integrated Test and Operations System
JHU	- John Hopkins University
JPL	- Jet Propulsion Laboratory
JSC	- Johnson Space Center
MAX	- Mid-Atlantic Exchange
Mbps	- Megabits per Second
MOLA	- Mars Orbiter Laser Altimeter



NASA	- National Aeronautics and Space Administration
NOAA	- National Oceanic and Atmospheric Administration
NRA	- NASA Research Announcement
ODU	- Old Dominion University
OMNI	- Operating Missions as Nodes on the Internet
OS	- Operating System
POP	- Program Operating Plan
RXTE	- Rossi X-ray Timing Explorer
SCPS	- Space Communications Protocol Standard
SEL	- Software Engineering Laboratory
SEW	- Software Engineering Workshop
SMART	- Scientist's Mission Assistant and Research Tool
SOFIA	- Stratospheric Observatory for Infrared Astronomy
SOHO	- Solar Heliosphere Observatory
SOMO	- Space Operation Management Office
SPIE	- The International Society for Optical Engineering
SST	- Sea Surface Temperature
STRV-1d	- Space Technology Research Vehicle 1d
TRMM	- Tropical Rainfall Measurement Mission
UAVs	- Unmanned Aerial Vehicles
UCAID	- University Corporation for Advanced Internet Development
UK	- United Kingdom
ULDB	- Ultra Long Duration Balloon
UMd	- University of Maryland